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MM      MM      TTTTTTTTTT  HH      HH      CCCCCCCCC  DDDDDDDDD  LL      000000  GGGGGGGG
MM      MM      TTTTTTTTTT  HH      HH      CCCCCCCCC  DDDDDDDDD  LL      000000  GGGGGGGG
MMM     MMM     TT          HH      HH      CC          DD          DD      LL      00      GG
MMM     MMM     TT          HH      HH      CC          DD          DD      LL      00      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      00      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      00      GG
MM      MM      TT          HHHHHHHHHH  CC          DD          DD      LL      00      GG
MM      MM      TT          HHHHHHHHHH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CC          DD          DD      LL      00      GG
MM      MM      TT          HH          HH  CCCCCCCCC  DDDDDDDDD  LLLLLLLLLL  000000  GGGGGG
MM      MM      TT          HH          HH  CCCCCCCCC  DDDDDDDDD  LLLLLLLLLL  000000  GGGGGG

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LL      IIIIII  SSSSSSSS
LL      IIIIII  SSSSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SSSSSS
LL      II      SSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LLLLLLLLLLLL  IIIIII  SSSSSSSS
LLLLLLLLLLLL  IIIIII  SSSSSSSS

```


(2) 51
(3) 60
(4) 89

HISTORY ; Detailed Current Edit History
DECLARATIONS
MTH\$CDLOG


```
0000 1      .TITLE MTH$CDLOG      D COMPLEX*16 Natural Logarithm
0000 2      .IDENT /1-003/      ; File: MTHCDLOG.MAR Edit: SBL1003
0000 3
0000 4
0000 5
0000 6 *****
0000 7
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0000 25     *
0000 26     *
0000 27     *****
0000 28
0000 29
0000 30
0000 31     FACILITY: MATH LIBRARY
0000 32     ++
0000 33     ABSTRACT:
0000 34
0000 35         This module contains routine MTH$CDLOG - perform D COMPLEX*16 log
0000 36
0000 37     --
0000 38
0000 39     VERSION: 1
0000 40
0000 41     HISTORY:
0000 42
0000 43     AUTHOR:
0000 44         Steven B. Lionel, 20-July-1979
0000 45
0000 46     MODIFIED BY:
0000 47
0000 48
0000 49
```


MTH\$CDLOG
1-003

D COMPLEX*16 Natural Logarithm L 16
HISTORY ; Detailed Current Edit History 16-SEP-1984 01:07:02 VAX/VMS Macro V04-00
6-SEP-1984 11:20:51 [MTHRTL.SRC]MTHCDLOG.MAR;1 Page 2
(2)

0000 51 .SBTTL HISTORY ; Detailed Current Edit History
0000 52
0000 53
0000 54 ; Edit History
0000 55
0000 56 : 1-001 - Adapted from MTH\$CLOG version 1-002. SBL 20-July-1979
0000 57 : 1-002 - Changed shared external references to G^ RNH 25-Sep-81
0000 58 : 1-003 - Use general mode addressing. SBL 30-Nov-1981


```

0000 60      .SBTTL  DECLARATIONS
0000 61
0000 62 :
0000 63 : INCLUDE FILES:
0000 64 :
0000 65
0000 66 :
0000 67 : EXTERNAL SYMBOLS:
0000 68      .DSABL  GBL
0000 69      .EXTRN  MTH$DATAN2
0000 70      .EXTRN  MTH$CDABS
0000 71      .EXTRN  MTH$DLOG_R8
0000 72
0000 73 :
0000 74 : MACROS:
0000 75 :      NONE
0000 76
0000 77 :
0000 78 : PSECT DECLARATIONS:
0000 79 :
00000000 80      .PSECT  _MTH$CODE      PIC, SHR, LONG, EXE, NOWRT
0000 81
0000 82 :
0000 83 : EQUATED SYMBOLS:
0000 84
0000 85 :
0000 86 : OWN STORAGE:
0000 87 :      NONE

```



```
0000 89 .SBTTL MTH$CDLOG
0000 90
0000 91 :++
0000 92 : FUNCTIONAL DESCRIPTION:
0000 93 :
0000 94 : The Natural Logarithm of a complex number (r, i) is
0000 95 : computed as follows:
0000 96 :
0000 97 : CLOG(arg) = (LOG(CABS(arg)), ATAN2(arg))
0000 98 :
0000 99 : CALLING SEQUENCE:
0000 100 : CALL MTH$CDLOG (result.wdc.r, arg.rdc.r)
0000 101 :
0000 102 :
0000 103 : INPUT PARAMETERS:
0000 104 : arg = 8 ; Argument by reference, a D COMPLEX*16
0000 105 : ; value.
0000 106 :
0000 107 : IMPLICIT INPUTS:
0000 108 : NONE
0000 109 :
0000 110 : OUTPUT PARAMETERS:
0000 111 :
0000 112 : result = 4 ; Result by reference, a D COMPLEX*16
0000 113 : ; value.
0000 114 :
0000 115 : IMPLICIT OUTPUTS:
0000 116 : NONE
0000 117 :
0000 118 : COMPLETION CODES:
0000 119 : NONE
0000 120 :
0000 121 : SIDE EFFECTS:
0000 122 : Signals Reserved Operand if the input parameter is bad (-0.0)
0000 123 :
0000 124 : --
0000 125 :
0000 126 :
01FC 0000 127 .ENTRY MTH$CDLOG, ^M<R2,R3,R4,R5,R6,R7,R8>
0002 128 MTH$LAG_JACKET ; set up error handler
0002
0002 MOVAB G^MTH$$JACKET_HND, (FP)
0009 ; set handler address to jacket
0009 ; handler
0009
50 08 AC DO 0009 129 MOVL arg(AP), R0 ; R0 -> (arg)
80 7F 000D 130 PUSHAD (R0)+ ; push addr(r)
50 DD 000F 131 PUSHL R0 ; push addr(i)
00000000'GF 02 FB 0011 132 CALLS #2, G^MTH$DATAN2 ; R0-R1 = DATAN2(arg)
7E 50 7D 0018 133 MOVQ R0, -(SP) ; Save ATAN2(arg)
08 AC DD 001B 134 PUSHL arg(AP) ; Get CABS(arg)
00000000'GF 01 FB 001E 135 CALLS #1, G^MTH$CDABS ; Get CABS(arg)
00000000'GF 16 0025 136 JSB G^MTH$DLOG_R8 ; R0-R1 gets LOG(CABS(arg))
52 04 AC DO 002B 137 MOVL result(AP), R2 ; Address of result
82 50 7D 002F 138 MOVQ R0, (R2)+ ; Real part of result
62 8E 7D 0032 139 MOVQ (SP)+, (R2) ; Imaginary part of result
04 0035 140 RET
```


MTH\$CDLOG
1-003

D COMPLEX*16 Natural Logarithm
MTH\$CDLOG

C 1

16-SEP-1984 01:07:02 VAX/VMS Macro V04-00
6-SEP-1984 11:20:51 [MTHRTL.SRC]MTHCDLOG.MAR;1

Page 5
(4)

0036 141
0036 142
0036 143

.END

MTH\$CDLOG
Symbol table

D COMPLEX*16 Natural Logarithm

D 1

16-SEP-1984 01:07:02
6-SEP-1984 11:20:51

VAX/VMS Macro V04-00
[MTHRTL.SRC]MTHCDLOG.MAR;1

Page 6
(4)

ARG = 00000008
MTH\$\$JACKET_HND ***** X 01
MTH\$CDABS ***** X 00
MTH\$CDLOG 00000000 RG 01
MTH\$DATAN2 ***** X 00
MTH\$DLOG_R8 ***** X 00
RESULT = 00000004

+-----+
! Psect synopsis !
+-----+

PSECT name	Allocation	PSECT No.	Attributes														
ABS	00000000 (0.)	00 (0.)	NOPIC	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE				
_MTH\$CODE	00000036 (54.)	01 (1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG				

+-----+
! Performance indicators !
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	33	00:00:00.06	00:00:00.53
Command processing	130	00:00:00.66	00:00:03.50
Pass 1	81	00:00:00.59	00:00:03.37
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	40	00:00:00.45	00:00:01.96
Symbol table output	2	00:00:00.00	00:00:00.02
Psect synopsis output	2	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	290	00:00:01.80	00:00:09.42

The working set limit was 900 pages.
2259 bytes (5 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 7 non-local and 0 local symbols.
203 source lines were read in Pass 1, producing 11 object records in Pass 2.
1 page of virtual memory was used to define 1 macro.

+-----+
! Macro library statistics !
+-----+

Macro library name	Macros defined
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0

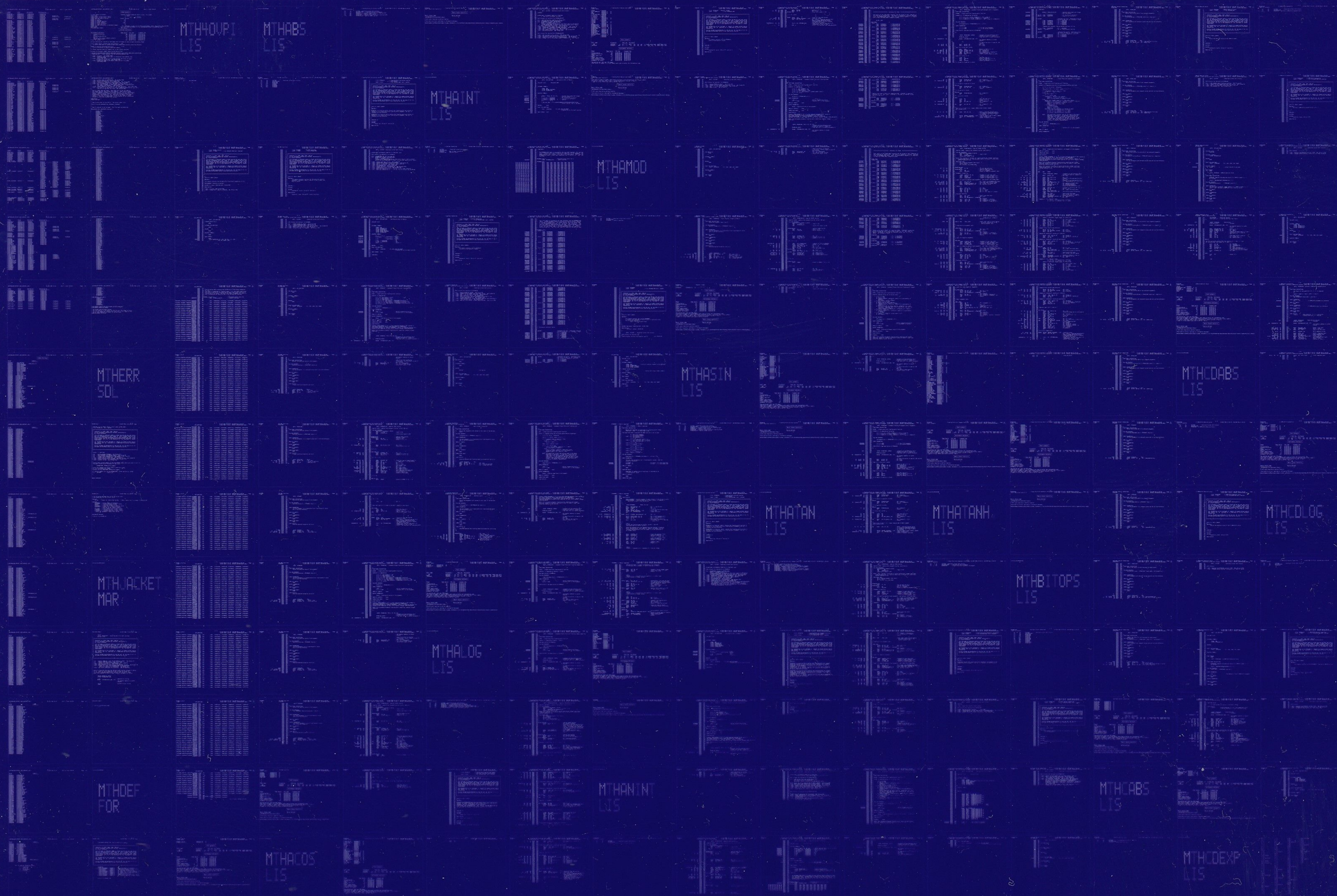
0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:MTHCDLOG/OBJ=OBJ\$:MTHCDLOG MSRC\$:MTHJACKET/UPDATE=(ENH\$:MTHJACKET)+MSRC

0257 AH-BT13A-SE
VAX/VMS V4.0

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